

Energy Technologies Area

2015 Self-Assessment Project 2

A Self-Assessment of Laboratory Area Chemical Spill Clean-up Preparedness

October 8, 2015

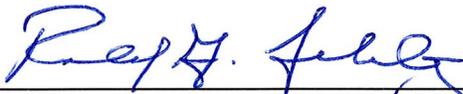
Approved by:



Ravi Prasher, ESDR Division Director



Date



Ron Scholtz, ETA Safety Manager



Date

Introduction

A variety of hazardous materials are commonly used in ETA lab areas. These include chemicals that are flammable, corrosive, toxic or reactive. When handled and stored properly, there is little likelihood that these chemicals can leak or spill. However, in situations such as damaged containers, dropped containers, overheating, over pressurization, or seismic event, chemical spills can occur. Even a small spill can present hazards to lab area personnel including fires, toxic fumes, and surface contamination. Being able to respond and quickly cleanup small spills is an important part of minimizing these hazards.

The purpose of this self-assessment project is to determine the level of preparedness for dealing with a minor hazardous material spill (1 liter or less) in ETA lab areas. The self-assessment scope includes availability of adequate spill cleanup supplies; spill prevention measures, and worker spill cleanup training/awareness. A number of different types of hazardous materials are used in ETA technical areas. Different types of cleanup materials and cleanup procedures may be needed depending on the hazard. The ESDR, EAEI, and BTUS divisions are all included in this assessment.

The ETA Safety Committee has selected chemical spill response preparedness in laboratory areas as a self-assessment project. This is the second ETA self-assessment project for FY2015.

Requirements

Requirements for responding to chemical spills are described in the following documents:

- LBNL PUB-3000, Chapter 45, Chemical Hygiene and Safety Plan, Work Process V, "Emergency Procedures and Equipment"
- LBNL PUB-3000, Chapter 45, Chemical Hygiene and Safety Plan, Work Process K, "Chemical Storage Guidelines"
- LBNL PUB-3000, Chapter 45, Chemical Hygiene and Safety Plan, Work Process L, "Control Procedures for Acids and Bases/Emergency Procedures"
- LBNL PUB-3000, Chapter 45, Chemical Hygiene and Safety Plan, Work Process N, "Control Procedures for Flammable and Combustible Liquids Emergency Procedures"
- LBNL PUB-3000, Chapter 45, Chemical Hygiene and Safety Plan, Work Process Q, "Control Procedures for Water Reactive Chemicals/Emergency Procedures"
- LBNL Emergency Guide (posted in all lab areas)- Revision 7/24/12
- ETA Integrated Safety Management (ISM) Plan

The basic requirements for lab area worker chemical spill cleanup are (per LBNL Emergency Guide):

1. You are not a high school student or a participant in an internship program.
2. There is no potential for release to the environment.
3. There are no personal injuries resulting from the spill.
4. You know what the hazards are.
5. The cleanup procedures are known and you have the proper spill cleanup materials.
6. You have the proper personal protective equipment (PPE) for yourself during the cleanup.

7. The spill can be cleaned-up by two people or less in one hour or less.
8. The spill does not involve beryllium or elemental mercury.

All ETA personnel are assigned to one or more Work Activities in the Activity Manager system. Each Work Activity identifies hazards and various controls for the hazards identified. This includes use of different types of hazardous materials; required engineering controls, personal protective equipment (PPE), and associated training requirements. Personnel who handle hazardous materials are required to complete EHS0348 "Chemical Hygiene and Safety" training. This training course includes information on spill response when working with hazardous materials. Additional training includes EHS0520/522 "Fire Extinguisher Safety", and EHS0604 "Hazardous Waste Handling."

All ETA personnel are required to maintain a safe work area, wear personal protective equipment when required, and report any safety issues immediately to their supervisor for follow-up and corrective action.

Methodology

The following methodology was used to conduct this chemical spill response self-assessment:

1. The self-assessment team made observations in each lab. See Attachment 1 for the lab area walkthrough check sheet form used. The information collected included:
 - a. What general types of chemicals are used in the area?
 - b. Are adequate spill cleanup supplies available for these hazards?
 - c. Are spill cleanup supplies compatible with the types of hazardous materials used?
 - d. Are the spill cleanup supplies readily available and easy to access?
 - e. Are there any special personal protective equipment requirements?
 - f. Are there any special spill cleanup equipment requirements?
 - g. Are hazardous materials adequately stored to prevent spills or damage to containers?
2. A chemical spill self-assessment survey was generated and distributed as an on-line "Google Survey" to all ETA lab area personnel. See Attachment 3 for the survey form distributed. The survey questions included:
 - a. What lab areas do you work in?
 - b. What is your job classification?
 - c. Do you know where chemical spill cleanup supplies are located in your area?
 - d. Do you know the spill cleanup procedures for the particular chemicals used?
 - e. Have you received training on how to cleanup small chemical spills?
 - f. Do you feel comfortable cleaning up a small chemical spill?
 - g. Who would you notify first when chemical spill cleanup assistance is needed?
 - h. Do you have any suggestions or concerns regarding chemical spill response?
3. A summary of the observations, noteworthy practices, and suggested improvements was compiled by the self-assessment team and is presented in this report.
4. The following personnel participated on the self-assessment team:

- a. Ron Scholtz- ETA Safety Manager
 - b. Dan Best- EHS Division
 - c. Michael Torkelson- Protective Services Division
5. The scope of this project applies to the following ETA lab areas:
- a. Building 62 wet lab areas- 62-102, 62-105, 62-246, 62-312, 62-314, 62-320, 62-342, 62-346, 62-350.
 - b. Building 70 wet lab areas- 70-103, 70-108, 70-114, 70-123, 70-143, 70-201, 70-215, 70-218, 70-220, 70-221, 70-226, 70-248, 70-249, 70-258, 70-263, 70-278, 70-279, 70-291, 70-295/70-299.
 - c. Other ETA work areas in Buildings 46, 51F, 63, 64, and 90
6. The following are not included in the scope of this self-assessment:
- a. Non-ETA operated lab areas in Buildings 62 and 70 such as Facilities, Earth Sciences, and Materials Sciences.
 - b. ETA technical areas that are still undergoing construction/set-up. This includes B33-120/121 and B60.
 - c. Office and break areas
 - d. Off-site fieldwork locations.

Summary of Findings, Observations and Noteworthy Practices

The following is a summary of findings, observations, and noteworthy practices identified by the self-assessment team. Significant items identified in the findings section are each entered into the Corrective Action Tracking System "CATS" to ensure these are addressed and completion documented.

Findings:

1. There are several lab areas identified that did not have spill cleanup supplies available as required. This includes 62-320, 70-114, 70-215, 70-220, 70-226, and 70-291. Spill supplies need to be staged in these lab areas and workers made aware of availability. (CATS# 9898-1; R. Scholtz)
2. There are several lab areas identified that had spill supplies available, but they were not adequate in type or quantity for the hazards in the area. This includes 62-102, 62-308, 62-312, 62-316, 70-201, and 70-279. The spill supplies in these areas need to be upgraded as needed and workers made aware. (CATS# 9898-2; R. Scholtz)
3. The storage of reaction flasks in cork holders presents a potential spill hazard due to the unstable nature of the round bottom flask. The flasks contain very hazardous chemicals that may be air/water reactive. A better method for storing the reaction flasks located in the 62-308 refrigerator needs to be identified and implemented. (CATS# 9899-1; B. McCloskey)
4. The storage of flammable solvents under the sink in 70-206 needs to be addressed. These containers need to be placed into a flammables storage cabinet or relocated to another lab area. (CATS# 9990-1; V. Battaglia)

Lab Walkthrough Observations:

1. During the walkthrough, no obvious chemical spills or leaks were observed.
2. During the walkthrough, several lab workers were asked questions by the self-assessment team about how they would address small chemical spills in their area. All responses were deemed acceptable. At a minimum, they would stop work and call X911 for assistance.
3. See Attachment 2 for a summary of the walkthrough observations made.
4. The self-assessment team visited a total of 49 ETA lab areas. Of these, **39** lab areas had hazardous chemicals in quantities/types that required some level of spill cleanup supplies in the event of a spill.
5. Are adequate spill supplies available?
 - a. Adequate: **24**
 - b. Not Adequate: **8**
 - c. No Spill Supplies Available: **7**
6. Types of spill supplies available?
 - a. Spill Pads Only: **9**
 - b. Solvent Sorbent Only: **5**
 - c. Combination of Spill Pads, Solvent, Acid, and Base Sorbents: **17**
 - d. Acid Sorbent Only: **1**
 - e. None: **7**
7. Is there any special personal protective equipment or spill cleanup materials required for cleanup?
 - a. Lith-X for lithium: **14**
 - b. Air Reactives: **1**
 - c. Bromine: **1**
8. Are hazardous materials adequately stored to prevent spills or damage to containers?
Issues observed:
 - a. Cork holders used for storage of reaction flasks. Flasks are not secured and have round bottoms.
 - b. Storage of flammable solvents under the sink in 70-206. Storage not properly identified or rated for flammable materials.
 - c. Storage of chemicals (clutter) in hoods (70-103, 70-201, 70-269)

Lab Worker Survey Observations:

1. See Attachment 4 for a summary of the lab worker survey responses.
2. Survey requests were sent to 100 ETA lab workers identified through the Activity Manager WPC system. Of these, 37 responses were received (37%).
3. Job Classification:
 - a. Principal Investigator: **8**
 - b. Post Doc: **10**
 - c. GSRA: **5**
 - d. Student: **5**
 - e. Affiliate: **4**
 - f. Career: **4**
 - g. Retire/Rehire: **0**
 - h. Contractor: **0**

- i. Other: (Term Appointment- **1**)
4. Chemical Spill Clean-up Supply Location:
 - a. Yes, I know where supplies are located: **33**
 - b. No, I do know where supplies are located: **2**
 - c. Other: (no chemicals in area- **2**)
5. Chemical Spill Clean-up Procedures:
 - a. Yes, I am familiar with how to cleanup small chemical spills: **35**
 - b. No, I am not familiar with how to cleanup small chemical spills: **0**
 - c. I am only somewhat familiar: **2**
 - d. Other: **0**
6. Training on Chemical Spill Clean-up:
 - a. Yes, I have received “on the job” training from my supervisor: **12**
 - b. Yes, I have received on-line EHS training that includes spill cleanup: **18**
 - c. No, I have not received any training at LBNL, but understand procedures based on past education/experience: **6**
 - d. No, I have not received any training on spill cleanup: **1**
 - e. Other: **0**
7. Comfort Cleaning-up Small Spills:
 - a. Yes, I’m comfortable with any types of chemical I work with: **22**
 - b. Yes, but only if a small quantity or certain type of chemical: **15**
 - c. No, I’m not comfortable cleaning up any type/quantity: **0**
 - d. Other: **0**
8. Notification for Clean-up Assistance:
 - a. X911 or X6999: **8**
 - b. Supervisor/Area Lead: **15**
 - c. ETA Safety Coordinator: **8**
 - d. EHS Division: **3**
 - e. Waste Management Group: **1**
 - f. Other: (depends on what was spilled- **2**)
9. Concerns and Suggestions:
 - a. Make a video available on the ETA website

Noteworthy Practices:

1. The spill supply cabinet located in 70-108 was clearly identified and contains a very complete supply of cleanup materials.
2. The small “Spilfyter” acid cleanup kit located in 62-342 is small enough to address typical spills and includes all the items needed to complete the task. This kit gave the self-assessment team the idea for a standardized yet compact spill cleanup kit for all lab areas.
3. The spill cleanup supplies in 70-263 include “Spilfyter” liquid acid and base neutralizers with pH indicator. Past spill cleanup experience has proven this type of neutralizer to be a superior method for cleaning up and decontaminating corrosive spills.
4. Both Building 62 and 70 have chemical spill cleanup carts situated in a centralized location. These contain spill cleanup supplies in quantities greater than what would be needed for a typical lab area spill, but will act as a good back up to current lab areas.

Conclusions and Future Improvements

Conclusions

The following conclusions summarize the results of the ETA chemical spill response self-assessment project:

1. There is a wide variety of spill cleanup supplies available in each lab area. Supplies varied from large accumulations of different types/brands of sorbents down to a simple stack of spill pads. The condition of the supplies varied greatly as well. There is a need to standardize on the types and quantities of spill cleanup materials made available in a typical lab area.
2. In some instances, it was difficult to quickly identify where the spill supplies are located in a lab area. The supplies are placed inside closed cabinets or under sinks. Spill supply locations need to be better identified.
3. In some areas it is difficult to access the spill cleanup supplies. They are located high up on a shelf requiring a ladder to access. In other instances, they are located away from the lab area entrance and may not be accessible in the event of a spill.
4. Based on the worker survey and spot check interviews during the walkthrough, it appears that the lab workers are knowledgeable about spill cleanup requirements and are comfortable cleaning up small spills. However, there seems to be a lot of variation regarding whom to call if assistance is needed. Calling X911/X6999 for fire department response is not the most preferred option.

Recommendations and Suggested Future Improvements

The following recommendations and improvements should be made in order to enhance chemical spill response in ETA lab areas:

1. A standardized spill cleanup kit should be developed and placed in each ETA lab area that requires cleanup supplies (ETA Safety Manager; 1/30/16). The standardized kit should feature:
 - a. Portable in size. Use a 14-20 inch plastic tool box (yellow or red in color).
 - b. Modular in nature. Contains small containers of sorbents for solvents, acids, bases, and spill pads, as needed depending on the chemicals used.
 - c. Includes other spill cleanup necessities such as scoop, plastic bags, and pH paper.
 - d. Include other spill response materials required for special hazards such as hydrofluoric acid, lithium, or other reactives.
 - e. Include an inventory/checklist to ensure all supplies are accounted for.
 - f. Clearly identified and placed in an easily accessed location.
2. The proposed standardized spill kits should be inspected on at least an annual basis to ensure they are properly stocked and stored in an accessible location (Principal Investigators). This can be a part of the required lab area self-inspections with verification by the ETA Safety Manager.
3. Spill-cleanup training materials should be developed and made available to ETA lab workers (ETA Safety Manager; 1/30/16). The training should be based on use of the standardized spill cleanup kits. Activity Leads can use this training as part of their "on the job" training. The training should include:
 - a. Clean-up procedures for solvents

- b. Clean-up procedures for acids and bases
 - c. Clean-up procedures for hazardous solids
 - d. Identification and location of spill kits
 - e. Personal protective equipment
 - f. Spill prevention
 - g. Emergency notification procedures (X911 or X6999)
4. Periodic hands-on spill drills should be considered to improve lab area worker preparedness. A simple check sheet was identified from another institution that could be used as a starting point in developing a process for conducting the drills.
 5. There are fairly large volumes of solvents stored inside some glove boxes. However, there is no means to quickly move spill cleanup materials into the glove box in an emergency. Past efforts involved staging universal spill pads inside the glove boxes. However, it was demonstrated that the low moisture atmosphere interfered with the ability of the pads to absorb. A better spill cleanup method needs to be implemented in the glove boxes. Perhaps pre-staging containers of a powdered solvent absorbent. However, this needs to be tested first (ETA Safety/Principal Investigators).
 6. Small bags of "Lith-X" powder have been previously staged near the glove boxes and hoods in the event of a lithium fire/reaction. Over time, the bags have been misplaced or relocated. Some glove box use areas do not have any Lith-X available. These bags should be placed inside the standardized spill kits so that they are more easily located. In addition, a small container of mineral oil should be included (ETA Safety; 1/30/16).
 7. Lab area housekeeping improvements should continue (Principal Investigators). This will minimize the amount of chemicals/old samples stored on counter tops, glove boxes, and in hoods. Past efforts have already had a positive impact on overall lab conditions.
 8. The results of this self-assessment will be made available to ETA lab personnel so that they are aware of issues identified and future plans (**Completed**- Posted on ETA Safety website and announced in division communications).

ATTACHMENT 1

Lab Area Spill Preparedness Walkthrough Survey Form

ETA Chemical Spill Self Assessment

Lab Area:

Date:

Assessment by:

Types of Chemicals Used:

1. Are adequate spill cleanup supplies available?
2. Are the spill cleanup supplies compatible with the types of hazardous materials used?
3. Are the spill cleanup supplies readily available and easy to access?
4. Are there any special personal protective equipment requirements for cleanup?
5. Are there any special spill cleanup equipment requirements?
6. Are hazardous materials adequately stored to prevent spills or damage to containers?

Comments:

ATTACHMENT 2

Chemical Spill Preparedness Walkthrough Results

Lab	PI	Chemical Hazards	Hazards-Other	Spill Kit Type	OK?	Spill Kit Location	Special PPE/Spill	Chem Storage Issues
62-102	Tucker (ESDR)	Flammable Solvents; Corrosive- Acid; Corrosive- Base; Hazardous Solids	None	Solvent Sorbent	No	Top of shelf near hood	None	
62-105	Solvent Storage Closet (ESDR)	Flammable Solvents	None	Spill Pads	Yes	Mounted on wall in plastic bag with labels	None	Solvent Storage Closet- New flammable cabinets recently installed.
62-220	McCloskey (ESDR)	Flammable Solvents; Toxic Solids	None	Spill pads, Acid Sorbent, Caustic Sorbent	Yes	Near entry door	None	None- recent major chemical clean-out and reorganization
62-246	McCloskey (ESDR)	Flammable Solvents; Corrosives- Acid; Toxic Solids	Water reactive- lithium	Spill Pads; Acid Sorbent	Yes	Bucket near lab entrance	Lith-X	
62-308	McCloskey (ESDR)	Flammable Solvents; Corrosive- Acid; Corrosive- Base	None	Spill Pads; Acid Sorbent	No		None	Use of cork bases for stored reaction flasks in refrigerator. Not stable for storage.
62-310	McCloskey (ESDR)	Flammable Solvents	None	Spill Pads; Caustic Sorbent	Yes	On shelf (not readily visible)	None	
62-312	Chen (ESDR)	Flammable Solvents	Water reactive- Lithium	"Pig" Socks; Lith-X Powder	No	Not readily visible	Lith-X	
62-314	Chen (ESDR)	Flammable Solvents; Corrosives- Acid; Hazardous Solids	None	Spill Pads	No	Small quantity in cabinet under sink	None	Spill supply location needs to be clearly identified.

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Chemical Spill Self-Assessment

	Tucker (ESDR)	Flammable Solvents, Corrosive- Acid; Corrosive- Base	None	Large solvent spill kit (pads)	No	Stored on top of storage shelf. Not clearly identifiable.	None	None- Chemicals used by Water Group and Cyclotron Road
62-316	Tucker (ESDR)	Flammable Solvents; Corrosive- Acid; Corrosive- Base	None	Large solvent spill kit (pads)	No	Stored on top of storage shelf. Not clearly identifiable.	None	None- Chemicals used by Water Group and Cyclotron Road
62-320	Chen (ESDR)	Flammable Solvents; Corrosives- Acids	Water Reactive- Lithium	None- Need	No	None	Lith-X	
62-342	Doeff (ESDR)	Flammable Solvents, Corrosive- Acid	Water reactive- lithium	Spill pads; Solvent Sorbent; Acid Sorbent	Yes	Sorbents located above counter top.	Lith-X	Spill pads high on shelf. Sorbent containers in small pre-packaged kits (Spilfyter). Idea for standardized spill kits- Best Practice
62-348	Balsara (ESDR)	Flammable Solvents	Water reactive- lithium; Air Reactive- Solvents	"SPC" Spill Kit contains spill pads and spill socks	Yes	Stored in cabinet under sink.	Air Reactives; Lith-X	Guidelines for Lith-X Use. Need to determine best way to handling air reactives spills (sand?)
62-350	Tong (ESDR)	Flammable Solvents; Corrosives- Base	Water reactive- lithium	Spill pads	No	Under sink. Not clearly identified.	Lith-X	
70-103	Destailats (EAE)	Flammable Solvents; Hazardous Solids	None	Solvent Sorbent; Acid Sorbent; Caustic Sorbent	Yes	Above sink near lab entrance		Hood areas cluttered with chemical containers.
70-108	Kostecki (ESDR)	Flammable Solvents; Corrosive- Acid; Corrosive- Base	Water Reactive- Lithium	Solvent Sorbent; Acid Sorbent; Caustic Sorbent; Spill Pads; Lithium Powder	Yes	Labeled cabinet under counter near hood	Lith-X	Spill supplies centralized in a readily identifiable cabinet- Best Practice
70-114	Liu (ESDR)	Flammable Solvents	Water Reactive- Lithium	None- Need	No	None	Lith-X (need)	
70-123	Balsara (ESDR)	Flammable Solvents	Water Reactive- Lithium	"SPC" Spill Kit contains spill pads and spill socks	Yes	Counter Top	Lith-X (need)	
70-138	Destailats	Hazardous	None	None- Not	N/A	N/A	None	5-gallon container of

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Chemical Spill Self-Assessment

	(EAEI)	Solids		needed?					
70-143	Weber (ESDR)	Flammable Solvents; Corrosive- Acids	None	Solvent Sorbent; Acid Sorbent	Yes	Cabinet near lab entrance. Not identified.	None	"Viscosine" stored on floor. Need to evaluate hazard.	
70-157	Zormpa (ESDR)	Flammable Solvents; Corrosive- Acid	None	Solvent Sorbent; Acid Sorbent; Caustic Sorbent	Yes	Counter above sink	None		
70-163	Zormpa (ESDR)	None	None	"Spillsolve" spill cleanup kit	Yes	Counter near hood	None	Chemicals have been removed and disposed	
70-166	Zormpa (ESDR)	Flammable Solvents, Hazardous Solids	None	Solvent Sorbent; Acid Sorbent; Caustic Sorbent	Yes	Counter above sink	None		
70-173	Therkelsen (BTUS)	Flammable Solvents;	None	"Universal" Safety Sorbent	Yes	Counter above sink	None		
70-174	Kostecki (ESDR)	Pump Oil Only	None	None	Yes	70-108	None	Chemicals are stored in 70-174A and 70-108	
70-201	Destallats (ESDR)	Flammable Solvents; Toxic Liquids; Corrosive- Acid	None	Solvent Sorbent	No	Located high on shelf, hard to reach	None	Rear hood area cluttered with chemical containers	
70-206	Battaglia (ESDR)	Flammable Solvents; Hazardous Solids	None	Solvent Sorbent	Yes	Located on counter above sink	None	A number of flammable solvent containers are stored under the sink. This location is not clearly identified and needs to be in an approved flammables cabinet.	
70-215	Kirchstetter (EAEI)	Flammable Solvents	None	None- Need	No	None	None		
70-218	Battaglia (ESDR)	Flammable Solvents; Corrosive- Acids	Water reactive- Lithium	Solvent Sorbent; Acid Sorbent; Caustic Sorbent	Yes	Located in cabinet above counter.	Lith-X	Spill supplies not visible, hard to reach	
70-220	Levinson (BTUS)	Paints and Solids	None	None- Need	No	Simple spill kit (pads) needed only	N/A		
70-223	Maddalena (EAEI)	Flammable Solvents	None	Solvent Sorbent	Yes		None		

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Chemical Spill Self-Assessment

	Liu (ESDR)	Flammable Solvents	Water Reactive-Lithium	None- need	No	N/A	Lith-X	
70-226	Liu (ESDR)	Flammable Solvents	None	None- need	Yes	N/A	None	Solvent Storage Closet- New flammable cabinets recently installed.
70-248	Solvent Storage Closet (EAEI)	Flammable Solvents	None	Spill Pads	Yes	Mounted on entry door in plastic bag with labels	None	Area not currently in use. No chemicals stored.
70-249	Rapp (EAEI)	N/A	N/A	None- not needed	N/A	N/A	N/A	
70-258	Battaglia (EAEI)	Glassware Cleaning Chemicals; Corrosive-Caustic	None	None- need	No	Simple spill kit needed only (pads)	None	
70-257	Weber (ESDR)	Flammable Solvents; Corrosives- Acid	Bromine	Solvent Sorbent; Acid Sorbent; Caustic Sorbent	Yes	Located next to lab entry door.	Bromine Spill Kit	
70-260	Maddalena (EAEI)	Flammable Solvents; Corrosives- Acid	None	Solvent Sorbent; Acid Sorbent	Yes	Located above counter next to hood.	None	
70-263	Srinivasan (ESDR)	Flammable Solvents; Corrosive- Acid Corrosive- Base	Water Reactive-Lithium	Yellow bag containing universal haz mat pads. Liquid acid and base neutralizer	Yes	Pads located under glove box. Neutralizers located in chemical cabinets.	Lith-X	
70-264	Maddalena (EAEI)	None	N/A	None- not needed	N/A	N/A	N/A	Chemicals have been removed and disposed.
70-269	Liu (ESDR)	Flammable Solvents; Toxic Solids; Corrosive- Acid; Corrosive- Base	None	Solvent Sorbent; Acid Sorbent; Caustic Sorbent;	Yes	Cabinet above counter.	None	Spill cleanup supplies difficult to access. Hoods cluttered with chemical containers (addressed).
70-275	Maddalena (EAEI)	Small quantities of organic tracers (liquid)	None	None- not needed	N/A	N/A	N/A	
70-279	Weber (ESDR)	Flammable Solvents;	None	Acid Spill Kit	No	Under sink in cabinet	None	Need spill supplies for solvent spills. Identify cleanup supply

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Chemical Spill Self-Assessment

		Corrosive- Acids								Location in cabinet.
70-289	Destallats (EAEI)	Consumer Sprays and Lubricants Only	N/A	None- not needed	N/A	N/A	N/A	N/A		
70-291	Cairns (ESDR)	Flammable Solvents	Water Reactive-Lithium	None- Need	No	None	Lith-X (need)			
70-295/299	Battaglia (ESDR)	Flammable Solvents; Toxic Solids; Corrosive- Acid; Corrosive- Base	Water Reactive-Lithium	Solvent Sorbent; Acid Sorbent; Caustic Sorbent;	Yes	Next to 70-291 Hood	Lith-X			0.2% Hyamine 1622 Solution for HF burns located with spill kit. Probably not authorized for use and should be disposed.
63	Singer (EAEI)	Consumer Sprays and Lubricants Only	N/A	None- not needed	N/A	N/A	N/A	N/A		None
64	Goudey (BTUS)	Consumer Sprays and Lubricants Only	N/A	None- not needed	N/A	N/A	N/A	N/A		None
46	Dickerhoff (BTUS)	Consumer Sprays and Lubricants Only	N/A	None- not needed	N/A	N/A	N/A	N/A		None
90 (Includes FLEXLAB)	Various	None	N/A	None- not needed	N/A	N/A	N/A	N/A		ETA Safety Manager maintains spare spill supplies in office.
75C	Rapp (EAEI)	Consumer Sprays and Lubricants Only	N/A	None- not needed	N/A	N/A	N/A	N/A		None

ATTACHMENT 3

Lab Personnel Chemical Spill Preparedness Survey Form

ETA Chemical Spill Response Self Assessment

9/28/15, 9:40 AM

ETA Chemical Spill Response Self Assessment

A self-assessment is being conducted to determine ETA lab area preparedness for responding to small (less than 2 liters) chemical spills. Each lab area is being visited to determine what chemical spill clean-up supplies are available. This is the second part of the self-assessment to determine lab area worker training and awareness of chemical spill cleanup procedures.

*** Required**

1. 1. The lab area I normally work in is: *

.....

2. 2. What is your job category at LBNL? *

Check all that apply.

- Principal Investigator
- Post Doc
- GSRA
- Student
- Affiliate
- Career
- Retire/Rehire
- Term Appt
- Faculty
- Contractor
- Other:

3. 3. Chemical spill clean-up supplies located in my lab area *

Mark only one oval.

- Yes, I know where spill clean-up supplies are located
- No, I do not know where the spill supplies are located
- Other:

ETA Chemical Spill Response Self Assessment

9/28/15, 9:40 AM

4. 4. Chemical spill clean-up procedures for the particular chemicals used **Mark only one oval.*

- Yes, I am familiar with how to clean-up most small chemical spills
- No, I am not familiar with how to clean-up any small chemical spills
- I am only somewhat familiar
- Other:

5. 5. Training on how to clean-up small chemical spills **Check all that apply.*

- Yes, I have received "on the job" training from my supervisor or area safety lead
- Yes, I have received on-line EHS training that includes chemical spill clean-up
- No; I have not received any training at LBNL, but understand spill clean-up procedures based on past experience/education
- No; I have not received any training on spill clean-up procedures
- Other:

6. 6. Do you feel comfortable cleaning-up a small chemical spill that may occur in your work area? **Mark only one oval.*

- Yes, any type of chemical that I work with
- Yes, but only if a small quantity or certain type of chemical (example: <500 ml)
- No; I am not comfortable with cleaning up any type/quantity of a chemical spill
- Other:

7. 7. Who would you notify first if you need assistance in cleaning up a chemical spill? **Mark only one oval.*

- X911 or X6999
- Supervisor/ Area Safety Lead
- ETA Division Safety Coordinator
- EHS Division
- LBNL Waste Management Group
- Other:

8. 8. Do you have any suggestions or concerns regarding chemical spill response in your work area?

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<https://docs.google.com/a/lbl.gov/forms/d/1DLLJ8o7q-2sRkyiUUTfRrv1dt5tO6T4l0IFzEyaPOQ/printform>

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ATTACHMENT 4

Spill Preparedness Survey Results

1. The lab area I normally work in is:	2. What is your job category at LBNL?	3. Chemical spill cleanup supplies located in my lab area	4. Chemical spill cleanup procedures for the particular chemicals used	5. Training on how to cleanup small chemical spills	6. Do you feel comfortable cleaning-up a small chemical spill that may occur in your work area?	7. Who would you notify first if you need assistance in cleaning up a chemical spill?	8. Do you have any suggestions or concerns regarding chemical spill response in your work area?
114	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	Supervisor/ Area Safety Lead	no
67-4209	GSRA	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	Supervisor/ Area Safety Lead	
Building 70, room 269, room 114, room 116	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead	Yes, any type of chemical that I work with	Supervisor/ Area Safety Lead	no
108	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead	Yes, any type of chemical that I work with	ETA Division Safety Coordinator	
B-70 108	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead. Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	depends on the chemical and the spill	
B70	Affiliate	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead	Yes, any type of chemical that I work with	Supervisor/ Area Safety Lead	it is good here

1. The lab area I normally work in is:	2. What is your job category at LBNL?	3. Chemical spill cleanup supplies located in my lab area	4. Chemical spill cleanup procedures for the particular chemicals used	5. Training on how to cleanup small chemical spills	6. Do you feel comfortable cleaning-up a small chemical spill that may occur in your work area?	7. Who would you notify first if you need assistance in cleaning up a chemical spill?	8. Do you have any suggestions or concerns regarding chemical spill response in your work area?
308	Student, Affiliate	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead, Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	X911 or X6999	
62-246	Student, Affiliate	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	ETA Division Safety Coordinator	
Building 70	Student, Affiliate	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead, Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	Supervisor/ Area Safety Lead	
70-217, 221, 223, 258, 260, 264, 275, 278, 289; B60, B71A, B51F	Principal Investigator	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	No; I have not received any training at LBNL, but understand spill cleanup procedures based on past experience/education	Yes, any type of chemical that I work with	it depends on what was spilled	

1. The lab area I normally work in is:	2. What is your job category at LBNL?	3. Chemical spill cleanup supplies located in my lab area	4. Chemical spill cleanup procedures for the particular chemicals used	5. Training on how to cleanup small chemical spills	6. Do you feel comfortable cleaning-up a small chemical spill that may occur in your work area?	7. Who would you notify first if you need assistance in cleaning up a chemical spill?	8. Do you have any suggestions or concerns regarding chemical spill response in your work area?
62-342	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead, Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	X911 or X6999	
67-6210 and 6216	Career	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	Foundry EHS Manager	
70-0257	Principal Investigator, Career	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	X911 or X6999	
none	Principal Investigator, Retiree/Reserve, Faculty	Not applicable	Yes, I am familiar with how to cleanup most small chemical spills	previous training	Yes, any type of chemical that I work with	EHS Division	no
269	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	EHS Division	no
70-157	Student	Yes, I know where spill cleanup supplies are located	I am only somewhat familiar	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	Supervisor/ Area Safety Lead	

1. The lab area I normally work in is:	2. What is your job category at LBNL?	3. Chemical spill cleanup supplies located in my lab area	4. Chemical spill cleanup procedures for the particular chemicals used	5. Training on how to cleanup small chemical spills	6. Do you feel comfortable cleaning-up a small chemical spill that may occur in your work area?	7. Who would you notify first if you need assistance in cleaning up a chemical spill?	8. Do you have any suggestions or concerns regarding chemical spill response in your work area?
B70 R291	GSRA	No, I do not know where the spill supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	No; I have not received any training at LBNL, but understand spill cleanup procedures based on past experience/education	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	Supervisor/ Area Safety Lead	
62-342	Principal Investigator	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	No; I have not received any training at LBNL, but understand spill cleanup procedures based on past experience/education	Yes, any type of chemical that I work with	ETA Division Safety Coordinator	
70-263	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	ETA Division Safety Coordinator	
B63	Career	Don't have one but maybe should for things like cutting fluid, WD-40, etc. Otherwise, it's not a wet chemistry space.	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	Supervisor/ Area Safety Lead	
Building 70	Affiliate	Yes, I know where spill cleanup supplies are located	I am only somewhat familiar	No; I have not received any training on spill cleanup procedures	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	Supervisor/ Area Safety Lead	
70-223	Career	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	ETA Division Safety Coordinator	

1. The lab area I normally work in is:	2. What is your job category at LBNL?	3. Chemical spill cleanup supplies located in my lab area	4. Chemical spill cleanup procedures for the particular chemicals used	5. Training on how to cleanup small chemical spills	6. Do you feel comfortable cleaning-up a small chemical spill that may occur in your work area?	7. Who would you notify first if you need assistance in cleaning up a chemical spill?	8. Do you have any suggestions or concerns regarding chemical spill response in your work area?
B62-348	GSRA	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	EHS Division	no
157	Affiliate	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	LBNL Waste Management Group	
Room 295, 299, 217A	Student	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	Supervisor/ Area Safety Lead	
070-0143	GSRA	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	Supervisor/ Area Safety Lead	
70-279	GSRA	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	No; I have not received any training at LBNL, but understand spill cleanup procedures based on past experience/education	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	X911 or X6999	
Fume hood and glovebox	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	X911 or X6999	
70-206, 218, 295-299, & B62	Career	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead	Yes, any type of chemical that I work with	Supervisor/ Area Safety Lead	Make some video on the division web page so that we can watch anytime if forget.

1. The lab area I normally work in is:	2. What is your job category at LBNL?	3. Chemical spill cleanup supplies located in my lab area	4. Chemical spill cleanup procedures for the particular chemicals used	5. Training on how to cleanup small chemical spills	6. Do you feel comfortable cleaning-up a small chemical spill that may occur in your work area?	7. Who would you notify first if you need assistance in cleaning up a chemical spill?	8. Do you have any suggestions or concerns regarding chemical spill response in your work area?
Building 70, Room 218	Affiliate	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	Supervisor/ Area Safety Lead	
62-316	Principal Investigator	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead, Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, any type of chemical that I work with	ETA Division Safety Coordinator	No
B62	Term Appt	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	No; I have not received any training at LBNL, but understand spill cleanup procedures based on past experience/education	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	X911 or X6999	
269	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	Supervisor/ Area Safety Lead	no
62-348	Post Doc	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received "on the job" training from my supervisor or area safety lead	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	ETA Division Safety Coordinator	
62-350	Principal Investigator	No, I do not know where the spill supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	ETA Division Safety Coordinator	

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70-215	Principal Investigator, Career	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	X911 or X6999	
70-269	Principal Investigator	Yes, I know where spill cleanup supplies are located	Yes, I am familiar with how to cleanup most small chemical spills	Yes, I have received on-line EHS training that includes chemical spill cleanup	Yes, but only if a small quantity or certain type of chemical (example: <500 ml)	X911 or X6999	